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ABSTRACT

This paper describes and evaluates a corrective mathematics program designed to meet the needs of approximately 25,000 Title I eligible pupils attending non public schools. The major objectives of the program were to improve the mathematical competency of pupils in computation, concept development and problem solving. Approximately 10,000 pupils were served by the program. The basic teaching methodology was a small group, materials oriented approach. Students were provided with workbooks, games, and other materials with a mathematics focus. Student participation and individualized instruction were also emphasized. Many students who received the services of the program were regularly involved with guidance counseling services. All students participating were given on a pre and post basis, one of the following tests: the Boehm Test in Basic Concepts; the Metropolitan Achievement Test (Mathematics) grades 2-8; or the Stanford Test of Academic Skills (Mathematics) grades 9-12. In all grade levels the students manifested statistically significant gains on their mathematics scores. The use of paraprofessionals was not shown to have contributed to the higher scores of the students involved. (Author/AM)

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EVALUATION REPORT

Function No. 09-69628

# Corrective Mathematics Services For Eligible Non Public School Pupils

Evaluation Period
School Year: 1975-1976

Stanley S. Clawar, Ph.D.

An evaluation of a New York City School district educational project funded under Title I of the Elementary and Secondary Education Act of 1965 (Pl 89-10) performed for the Board of Education of the City of New York for the 1975-76 school year.

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## Table of Contents


| | page |
|---|---|
| Chapter I: The Program | 1 - 3 |
| Chapter II: Evaluation Procedures | |
| Evaluation Objective #1 | 4 |
| Methods and Procedure | 4 |
| Data Analysis | 4 |
| Time Schedule | 5 |
| Evaluation Objective #2 | 5 - 6 |
| Chapter III: Findings | |
| Evaluation Objective #1 | 7 - 8 |
| Paraprofessional Impact | 8 |
| Evaluation Objective #2 | 8 - 15 |
| Recommendations from last year's Evaluation Report | 16 - 17 |
| Chapter IV: Summary of Major Findings, Conclusions, and Recommendations | |
| Conclusions | 18 |
| Recommendations | 18 - 20 |
| Appendix | |
| Historical Regression Design | 21 |
| Boehm Test Data - Grade 1 | 22 |
| Paraprofessional Contact Analysis | 23 |
| Data Loss Form | 24 |

## Chapter I

## THE PROGRAM

This program is one component of an umbrella program designed to meet the needs of approximately 25,000 Title I-eligible pupils attending non-public schools.

Approximately 10,000 pupils will be served by this component. It is designed to provide corrective mathematics instruction to pupils attending non-public schools. The major objectives are to improve the mathematical competency of these eligible pupils in computation, concept development and problem solving. Instruction was given by teachers licensed by the Board of Education in rooms provided by the non-public schools. The project funded salaries for teachers, supervisors and administrative staff. The cost of teaching materials, instructional supplies and equipment, audio-visual aids, pupil workbooks and offset printing will be included in the budget. The project staff included one coordinator, five field supervisors, 82 teaching positions, one senior clerk, two typists and one school secretary.

The pupils are eligible for participation in the program because they met two criteria - residence in a target attendance area (specified by the U.S. Office of Education) and a score below the cut-off point on a standardized test. In terms of the teachers' workload, the daily program of instruction for groups of 10 or less included class instruction time (about 4 hours), conference time (about 1 hour), and the rest devoted to lunch and class preparation. The classes meet a minimum of once a week to a maximum of five times per week for elementary and secondary levels. The period of instruction varied from about 40-60 minutes per session.

Ideally, children who need more teaching are seen a greater number of times per week. The program has been in operation during the entire school year although some schools did not start in September of 1975 or were not finished with their pre-testing on time due to staff reductions and changes which were initiated on the Board level.

In some schools the districts provide funding for the use of paraprofessionals. The paraprofessionals varied in terms of educational background, ethnic characteristics, place of residence, knowledge of the school and children as well as years of experience. Their basic duties were to assist with the preparation of materials, clerical tasks, attendance records and grading, and one-to-one tutoring of selected pupils.

The basic teaching methodology was a small group, materials oriented approach. Students were provided with workbooks, ditto sheets, games, puzzels, stories, computers (actually a math tutoring calculator), arts and crafts materials and other materials with a mathematics focus. Student participation and individualized instruction were also emphasized. In some cases, the paraprofessional assisted in the individualizing of instruction.

Teachers were encouraged to attend and participate in workshops, conferences and other in-service training activities. Workshops were usually organized around themes such as teaching probability, setting-up parent workshops or making and using your own game materials. When teachers were not teaching in the non-public schools, they substituted in public schools or participated in training programs or worked on activities determined by the coordinator of the program; this was

necessary due to the different schedules of non-public schools and the contract requirements of the program teachers.

The field supervisors were to be regular contact personnel with designated teachers; they were to provide assistance and direction in terms of program guidelines and teachers' needs. The teachers' needs included special teaching problems, staff relationships in the non-public schools (including relationships with the paraprofessionals), parent contacts or other areas where models of performance or ideas could be of assistance. Supervisors also served as liaison people between the coordinator and the teacher as well as between the coordinator and the non-public school staff.

The duties of the coordinator included implementing established policy; overseeing and coordinating the field supervisors, organizing and monitoring in-service training sessions, participating in special problems that may arise in the field, serving as a liaison between the Board of Education and the staff of the program, participating in the hiring and termination of staff, providing input into material resource needs, assist evaluations of the program, coordinating testing programs and results and monitoring the quality of teaching in the schools.

Many students who received the services of the program were regularly involved in guidance. The assumption was that some students who are having difficulties in cognitive skill performance may also be having problems in their emotional adjustment; guidance could be a positive input for their learning. Some students who evidenced a need for emotional adjustment were as a matter of program procedure referred for professional help from "Clinical and Guidance" component of the nonpublic school programs.

## Chapter II

## EVALUATION PROCEDURES

The Corrective Mathematics Program in the non-public schools is designed to augment the established mathematics classes. The goal is to raise the mathematics achievement of the student. The program objective was to enable pupils in the Corrective Mathematics Program to achieve a statistically significant improvement in their mathematics level. It was, therefore, the evaluation objective (#1) to determine if, as a result of participation in the Corrective Mathematics Program, there is a statistically significant improvement in the pupils mathematics level. The subjects included all participants in the Corrective Mathematics Program.

Methods and Procedure - all subjects were to be administered, on a pre/post basis, one of the following tests on the appropriate level: Boehm Test in Basic Concepts; Metropolitan Achievement Test (Mathematics) grades 2 - 8; Stanford Test of Academic Skills (Mathematics) grades 9 - 12.

Data Analysis - data were analyzed separately for each grade in accordance with the form of normative scores yielded by each test. The analysis for each test was as follows:

Boehm Test - Raw Scores - data were analyzed in terms of the number and percentage of pupils who achieved a criterion level raw score of 28 or better. Pupils are phased out of this level and placed in the regular academic curriculum upon acquiring this level of mastery regardless of length of time in the program.

MAT (Mathematics) - grade equivalent norms - data were submitted to historical regression analysis to obtain predicted posttest results.

The difference between real posttest (without treatment) grade equivalent means will be tested for statistical significance at the .05 level with the correlated t-test.

Stanford (TASK) - percentile norms - a correlated t-ratio was applied to the difference between pre/posttest normal curve deviate means converted from percentile ranks to ascertain statistical significance at the .05 level in a "Modified Real vs. the Anticipated Gain" design. In addition, pre/posttest data in scaled form in order to facilitate the data analysis required for the Clinical Guidance component of the umbrella program was made available.

Time Schedule - the pretest was to be administered between September and October of 1975 and the posttest was to be administered between May and June of 1976.

Evaluation Objective #2: To determine the extent to which the program, as actually carried out, coincided with the program as described in the project proposal. For this objective the evaluator must analyze the degree and types of discrepancies that existed between the project proposal and the actual implementation of the program specifics.

This objective was met by meeting with all supervisory personnel (in groups and one-to-one), on-site visitations of teachers in the non-public schools (10 schools were visited on a pre/post basis and 10 schools received an all day visitation) with classroom observations, discussions in the schools with the administrators (usually the principals), talks with pupils in the program, observations of and participation in workshops and conferences and talks with the paraprofessional (where they were present). Schools for visitation were selected so as to give representation of varying grade levels, years of teacher experience, religious

denominational differences of the school, neighborhood composition, different school districts and number of days of service that the school received.

The evaluator, in addition to the interviews cited above, studied teachers' daily lesson plans, pupils' progress reports, pupils' folders, mathematics materials present and used, condition and location of the physical facilities and reaction of the paraprofessional to the teacher as well as vice versa.

The evaluator did not start his field work until the end of December and the beginning of January due to his late hiring (when the original evaluator assigned to the program withdrew). This late start necessitated a tight scheduling from January to June in order to meet all of the specifics in the evaluation guidelines for the Corrective Mathematics Program. The completion of all evaluator activities was made possible by the full cooperation provided by the Program Coordinator and her staff of supervisors and office personnel. Their availability, assistance and candor were invaluable.

## Chapter III

## FINDINGS

Objective #1 - To determine if as a result of participation in the Corrective Mathematics Program, there is a statistically significant improvement in the pupils' mathematics level.

The major program objective noted above is judged to be highly successful, as shown in the analysis on the Mailed Information Form (MIR) presented in the Appendix. All grade levels revealed more improvement than expected by the predicted measure. The MIR for the historical regression analysis reveals that although there were significant gains for all grade levels, there were larger differences for those in the program for the 8 month interval than for those in the program for the 4 month interval. (Those in the program for 8 months had greater gains for all grade levels than those in the program for only 4 months.)

The data for the Boehm test was analyzed separately. (There was no MIR form available to record the data, see Appendix "Corrective Mathematics in Non-Public School, function #09-69628 Boehm Test Data for Grade 1".) We note that the improvement in the Spatial subtest was great with about 60% more passing in the posttest than in the pretest. For the Quantitative subtest about 70% more passed in the posttest than in the pretest. For the Time subtest there was no difference between the pre and posttest (0.00 vs. 0.00).

The positive findings of the pre-posttest are in keeping with the evaluator's observations of an extremely well organized and well supervised program with high quality teaching. The availability and incorporation of mathematics materials by the teachers helped to create high

levels of interest and motiviation on the part of the pupils. Careful record keeping, proper testing procedures and follow-up reports to parents were also factors in understanding the high level test results. Teachers were always (with one exception) well prepared with lesson plans that fit the structure and goals of the program. Students especially enjoyed the manipulative materials in which they could participate, games where they were called to the blackboard and role playing activities (such as storekeeper or consumer).

Paraprofessional Impact - In general, the table in the Appendix ["Paraprofessional Contact Analysis(Analysis of Covariance Analogue)"] reveals virtually no positive impact of the paraprofessional for the various grade levels; this is consistent with last year's evaluation finding - "Paraprofessional did not have a statistically significant effect on test scores."

The pedagogical methodology employed by the paraprofessionals varied and, at times, was uncoordinated with the regular teachers' needs. There was also a confusion on the part of some paraprofessionals as to what their duties were; some knew and accepted their role as an aid in the learning process, but others asserted themselves as teachers which caused them to enter into cognitive skill domains beyond their level of expertise. However, when the paraprofessionals were from the neighborhood and knew the students, they helped to create an atmosphere of cooperation in the classroom. In a few cases the paraprofessionals were even able to provide orientation information to teachers who did not know about the community. However, the present evaluation included the reactions of only 18 different teachers and 10 paraprofessionals (it would have been 11, but one was absent on the visitation day) so caution should be exercised in generalizations.

Objective #2 - To determine the extent to which the program, as actually carried out, coincided with the program as described in the

project proposal.

The above objective was evaluated in terms of a discrepancy analysis. The evaluator paid particular attention to the mathematics materials present in the classroom, how materials were displayed, the teacher's use of mathematics materials, the emphases in teacher's lessons compared to program guidelines, the teacher's relationship with other teachers, teacher made lesson plans (daily, weekly and by pupil), group size, teacher contact with parents, the teacher's relationships to the school administrative staff, attendance records for pupils, rating of paraprofessional activities, pre-service training and in-service training, the teacher's needs in terms of equipment and supplies, the role of the coordinator, the activities and rapport of the supervisors with the coordinator and teachers and the conferences and workshops in the program. The evaluator developed a rating for each program specific and employed this rating scale on all visitations and meetings. A rating of 1 was excellent, 2 was fair to good and 3 was poor or below an acceptable degree of fit with the program guidelines. This rating system enabled the evaluator to judge the specific settings and teachers as well as to analyze problematic areas of operation.

The discrepancy analysis revealed that the program specifics itemized above are, by and large, in keeping with the guidelines of the program proposal. Overall, the program specifics received a good to excellent rating with the least degree of discrepancy recorded for the keeping of attendance records and having the necessary supplies and equipment. The greatest degree of discrepancy was recorded for conferences with parents and communication with the school principal. The conference with parents

received the lowest rating of all program specifics due to the fact that some teachers were in schools receiving only one day of service. Also, it should be noted that parent involvement for any particular school function is usually no more than 10%. Many teachers, however, attempted to involve parents, but were not as successful as they would like to have been. One teacher told the evaluator that after her supervisor assisted her with a parent workshop parent participation increased.

Conferences with students are problematic due to scheduling problems within some schools. Communications between teachers and principals ranged from excellent to very poor. Those who received excellent (1) ratings knew the teacher's name, goals and some specifics about the teacher's impact. Also, the highly rated situation was one where the principal attempted to make the Corrective Mathematics Teacher part of the communications in the school without violating the separateness of the program. It should be noted that some principals were afraid to be "overly friendly" due to what they perceived to be "the law." Principals must be made more aware of what actions are permitted and what actions are not permitted under the existing code. Only one principal was actually unaccepting to the program and the teacher (who was an excellent teacher operating under extremely difficult physical conditions); this principal felt that non-public schools should receive the aid directly and not via certain Board administered programs. This unaccepting reaction was the exception and most principals were trying to cooperate in every way possible to make the program an effective one.

The average number of years in the program of the teachers visited was 3.9. The presentation (a mean rating of 1.1 for all teachers visited), display (a mean rating of 1.2) and use of (a mean rating of 1.1) mathe-

matics materials were excellent. Teachers tried to make the rooms visually interesting and cognitively stimulating by employing the materials provided to them and by improvising their own display items.

The emphases (such as problem solving, conceptualization and computation) were excellently adhered to by the teachers (a mean rating of 1.1). Lessons were organized around the primary goals and objectives of the proposal; teachers generally knew what the function of each lesson was in terms of behavioral outcomes by the pupils.

All groups were under the maximum of 10 pupils except in one case where a scheduling problems necessitated a group of 11-12 pupils. There was virtually no discrepancy in terms of group size from the guidelines even though scheduling difficulties were not uncommon.

The logging of daily (a mean rating of 1.3), pupil (1.3) and group (1.4) lesson plans was also excellent and little evidence of discrepancy could be noted. Teachers were generally diligent in recording the content and methodology of their lessons. Some pupils who were significantly below the class performance could have used more feedback on their performance as manifested in the pupils' work folder; paraprofessionals could be used in this regard.

The degree of teacher satisfaction with the field and coordinator supervision was excellent (1.2). Teachers indicated, almost without exception, that the supervisory staff was well qualified, and that they elicited concern for the teachers' needs. The supervisory staff was readily available for special needs in addition to their regular visitations in their districts. However, first year teachers did indicate a greater need during their first months and a priority of visitation

patterns may be useful to establish in this regard. The supervisory staff was universally perceived as a group of dedicated professionals who were "there to help and guide rather than the old idea of supervision which was to threaten and unflexibly lay down rules." (This quote from one of the teachers is a fair summary of many of the other teachers.) To a large degree, the supervisory staff was responsible for the success revealed in the testing of this program.

The pre-service training was perceived by the teachers to be excellent (1.2) as well as the in-service training (1.2). In some cases, the pre-service training was somewhat inadequate due to the last minute hiring of personnel as a result of changes in staffing allocations. The program was supposed to have 68 teachers, but ended up with 82 teachers; many of the additional teachers had to be trained rather quickly in terms of program guidelines. The in-service training was also rated as excellent, but a few teachers expressed specific needs for sessions on materials manipulation, recognition of L.D.'s (Learning Disabilities) and some wanted less lecture style conferences and workshops; they wanted more focus on participatory style sessions. The training sessions where teachers exchanged ideas and supervisors gave demonstrations with teacher participation were rated the highest by the teachers.

The paraprofessionals were rated (by the evaluator) at 1.4 out of a possible (low of) 3.0. However, the feelings of the teachers were quite diversified. Some teachers felt that they were a great asset, others felt that they were somewhat of a distraction (as they had to be montioring their activities as well as the students). Generally, those teachers who had paraprofessional assistance felt that they were functional and those who did not have para assistance felt that they could function

just as well without them. Most teachers (60% or 11 teachers out of 18) felt that the paraprofessional should have knowledge of the community and that they should be more clearly aware of their role obligations (to assist the Board appointed teacher). There were a few incidents of apparent conflict between paraprofessional and teachers as a result of the lack of clarity of the division of labor in the classroom.

This program is definitely meeting the guidelines specified in the proposal. There were, however, some problematic findings which should be itemized. In most cases the problems noted below were distilled from interview comments made by teachers. A number of these problems will be used as a basis for recommendations in the next chapter of this report. Note that most of these program problems may be considered minor in nature and are not meant to strongly detract from the overall judgement of a high quality program.

Problems: * 1. some teachers (30% or about 5 teachers out of 18) received pressure to accept students who did not qualify for the program.

2. in a few schools,(15% or 3 teachers out of 18) paper supplies were inadequate (including rolls for the tutor computor)

3. Systems 80 did not become operable until late in the year (10% or about 2 teachers out of 18, however, only 4 schools visited had this tool)

4. some teachers (10% or about 2 teachers out of 18) felt "isolated" from other teachers in the school.

5. the teacher who is only providing service on a one day basis does not feel enough reward from their teaching. This teacher had special needs in the area of communication skills in order to reach the students more quickly. (10% or about 2 teachers out of 18).

6. class noise during lessons was a distraction to some students.

* a total of 20 different schools with 18 different teachers constituted the sample

7. skill level of some paraprofessionals (about 5 paraprofessionals) was noticeably inadequate. Some (about 5) did not know how to engage a student in their exercises or how to follow-up with feed-back information that would have aided the student's learning.

8. some (20% or about 4 teachers out of 18) material displays were poorly arranged. Some (40% or about 7 teachers out of 18) displays were too small in print size. Some displays were beyond the level of the classes taught (10%). Students own work was not incorporated enough into the displays (60% or about 11 teachers out of 18).

9. one group was oversize with a total of 12; these settings inhibit the interaction designed into the program with the limit of 10.

10. some classes (30% or about 5 teachers out of 18) did not use the full period of time; students arrived at different intervals and often broke the trend of thought by entering late.

11. the MAT test is quite language dependent and there are math skills developed in the classrooms which are not tapped by this test such as consumer activities, money exchange skills and others.

12. some materials were not well understood by inner-city children due to the discrepancy between their life experiences and those of the children represented in various materials. (This discrepancy should not be interpreted to mean that all "non-relevant" materials are to be eliminated). This was a factor in about 30% of the schools observed (or about 5 teachers out of 18).

13. principals in various schools could be of more service to the program without violating the guidelines; some principals (15% or about 3 principals out of 18) showed no or limited involvement in scheduling and other problems which they could have expedited if they so desired. Some principals (15% or about 3 out of 18) did not even make themselves available to the evaluator even though they were given notice of his visit.

14. scheduling problems were so severe in some schools (30% or about 5 out of 18) that it took weeks to establish continuity.

15. some teachers (30% or about 5 teachers out of 18) manifested a lack of knowledge concerning the transition of one activity into another. At times the loss of class attention took many minutes to regain; this is especially important where the teacher is only meeting the students once or twice each week.

16. some physical facilities (20% or about 4 out of 18) provided by the schools were extremely poor. During the winter, some rooms had no heat; during the warm weather one school had the windows screwed closed (due to the fear of vandalism). In another case the math room was next to another room which had a very high noise level; the students had difficulty in hearing the teacher. Lighting was low level in another school.

17. some teachers (50% or about 9 teachers out of 18) did not know how to involve the parents.

18. some teachers (20% or about 4 teachers out of 18) and paraprofessionals (about 4) complained that they are moved from school to school and that they could be of better service if they were not re-assigned each year.

19. some teachers (10% or about 2 teachers out of 18) were reinforcing negative student behavior without being aware that they were doing so.

20. some teachers (10% or about 2 teachers out of 18) did not know how to handle the disruptive child and still maintain control of the class.

21. not all teachers (60% or about 11 teachers out of 18) directed enough attention to the teaching of a math vocabulary.

22. some teachers (20% or about 4 teachers out of 18) expressed the interest in obtaining more information about the specific schools into which they were placed; they wanted information on the history of the school, neighborhood composition, achievement levels, etc.

23. some teachers (10% or about 2 teachers out of 18) requested more imput into the ordering of materials for the program.

Recommendations from last year's evaluation report

1. Recycle and expand the present program - this recommendation was carried out.

2. Training and assistance in the effective use of the paraprofessional should be provided for all teachers. The paraprofessionals should be assigned to the corrective math teacher in the classroom at the beginning of the year. The first sentence of this recommendation was not adequately carried-out as expressed earlier in this chapter. There are still division of labor problems (some of which are on the part of the paraprofessional and somewhat beyond the ability of the Coordinator's control). In general, the second sentence of the recommendation was carried-out.

3. The parent program should be expanded to familiarize the parents with the methods and techniques of the program. Some attention was devoted to this recommendation, but varied greatly as a function of the individual supervisor. Some supervisors assisted and attended the workshops that they helped their teachers to set-up, while other supervisors did not deveote enough time to this.

4. Communication between Title I teachers and the non-public school teachers should be continued. This recommendation was generally not carried-out. Many teachers felt isolated from the rest of the staff. Part of the communication problem is due to a lack of understanding on the part of some public and non-public school personnel as to exactly what the guidelines specify; these should be discussed in order to clarify the situation. Also, the day is so full that it is really unrealistic to expect very much communication between any teachers, let alone some teachers who visit a school on less than a five day basis. Principals generally did not use the authority and knowledge in their office to assist this recommendation.

5. In-service training and visitations between Title I teachers should be continued. This recommendation was carried-out. The interchange and conference sessions set-up by the supervisory staff was well-received; the teachers generally wanted even more of this kind of in-service training.

6. Teachers should be chosen who have had experience in teaching mathematics plus classroom teaching experience at more than one grade level. This recommendation was carried-out with some exceptions. Often the decision making process in this regard is limited because of the seniority rule. In general there was little performance difference between those who had math experience and those who did not with the exception of one teacher who was trained in another field and was rated the lowest of all teachers observed. Non-math people did express an interest in a more intensive orientation session due to their limited background. However, even math trained people did not necessarily know how to teach in a "corrective" math context when they first started. Again, most teachers exhibited high quality and were well prepared for their classes.

## Chapter IV

## SUMMARY OF MAJOR FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

In all grade levels the students manifested statistically significant gains of their mathematics scores over the predicted scores. In general, the use of paraprofessionals did not contribute to the higher scores of the students involved. The discrepancy analysis revealed that, by and large, the program was meeting the guidelines of the proposal. Some recommendations from last year still need further work.

Conclusions - the program was highly successful, well-administered and well taught. There were some problems (cited in chapter III of this report) which will serve as the basis for the recommendations listed below. It is recommended that the program be recycled.

Recommendations:

1. elaborate on the needs of the one-day service teacher as a person with special needs in terms of teaching skills. Provide special sessions for these one to two day teachers on how to initiate and review lessons.

2. elaborate on the in-service training in how to differentiate "learning noise" from other class noise. Teachers must know how to regulate the noise level as it is distracting to some students.

3. continue to provide information on how teachers may assist paraprofessionals in understanding their job duties. The skill level of some paraprofessionals was low and will require inputs from the teacher on how to function. (The Corrective Mathematics program does not recruit or hire paraprofessionals. However, when paraprofessionals are assigned, the Corrective Mathematics teachers provide in-service training).

4. continue to provide information on how to make different types of classroom displays (including ones that the students have constructed). Some teachers ( 5%) are still not aware of the difference between an educational display and just hanging different objects on the wall.

5. suggest techniques to the teachers on how they may reduce the late arriving students who disrupt the established flow of a lesson in progress.

6. continue to screen materials that have more relevance for inner-city children.

7. schools with scheduling problems that are so severe that they interfere with the math services provided must be given special attention. Supervisors should brief the teachers in such schools about anticipated problems to a greater degree.

8. teachers should continue to receive in-service training on how to make a transition from one kind of activity or material into another. (It is during this transition that some (40% or about 7 teachers out of 18) teachers lost the students' attention.) Also, teachers should be instructed on how to arrange initiation activities so that they can get the class started right-away (such as a math warm-up drill, a student file check, etc.)

9. parent involvement workshops should be held by the supervisors and the supervisors should then follow-up to see that the teachers are implementing the suggestions. Key parents may be used to contact others.

10. special training should continue to be provided for those teachers who felt the need to know how to handle the disruptive child. Discipline problems were rare, but proved serious where they occurred.

11. teachers should direct more attention to developing a math vocabulary in their students. Putting a few words a day on the blackboard and having the students record them in their own notebooks is one way of developing a cumulative record of words and terms. Also, flash card games (in small groups or as a class) is another activity to meet this need. The vocabulary should be developed in relationship to specific lessons.

12. continue to provide information on the anti-poverty nature of the program. Provide more information for (new) teachers about the specific locale of their school, neighborhood composition, and other information that would be useful for the teacher to know about the social and educational context of the children they will service.

13. new teachers should continue to receive higher priority in supervision during the first few months of their placement.

14. continue to sensitize the teachers to the characteristics of children with L.D. (learning disabilities). Also, some (25% or about 5 teachers out of 18) teachers expressed concern that retarded or severely emotionally disturbed may be in their classes; provide more information on how they can serve as a referral agent in such cases.

Table 9 Historical Regression Design (6-step Formula) for reporting norm referenced achievement tests in Reading and Mathematics.

In the table below, enter the requested assessment information about the tests used to evaluate the effectiveness of major project component/activities in achieving cognitive objectives. This form requires means obtained from scores in the form of grade equivalent units as processed by the 6-step formula.(see District Evaluator's Handbook of Selected Evaluation Procedures, 1974, p. 24-31) Before completing this table, read all footnotes. Attach additional sheets if necessary.

| Component Code | Activity Code | Test Used 1/ | Form Pre | Form Post | Level Pre | Level Post | Total N 2/ | Group ID 3/ | Number Tested 4/ | Pretest Date | Pretest Mean | Predicted Posttest Mean | Actual Posttest Date | Actual Posttest Mean | Obtained Value of t |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 609230 00 | 720 | MAT-70 | F | F | 2Pri 3El | 2Pri 3El. | 108* | grades 2 - 3 | 97 | a | 2.018 | 2.281 | a | 2.612 | 5.426*** |
| 609230 00 | 720 | MAT-70 | F | F | 2Pri 3El | 2Pri 3El | 2408* | grades 2 - 3 | 2372 | b | 1.635 | 1.902 | b | 2.778 | 81.143*** |
| 609240 00 | 720 | MAT-70 | F | F | 4El 5&6 Int | 4El 5&6 Int | 141* | grades 4 - 6 | 132 | a | 3.832 | 4.003 | a | 4.417 | 5.520*** |
| 609240 00 | 720 | MAT-70 | F | F | 4El 5&6 Int | 4El 5&6 Int | 3474* | grades 4 - 6 | 3442 | b | 3.444 | 3.804 | b | 4.546 | 39.053*** |
| 609250 00 | 720 | MAT-70 | F | F | Adv | Adv | 99* | grades 7 - 8 | 96 | a | 5.283 | 5.543 | a | 6.042 | 4.495*** |
| 609250 00 | 720 | MAT-70 | F | F | Adv | Adv | 1224* | grades 7 - 8 | 1218 | b | 4.884 | 5.217 | b | 6.234 | 33.900*** |
| 609250 00 | 720 | TASK-72 | W | W | 1A | 1A | 105 | grade 9 | 92 | b | -1.145 | c | b | -.553 | 13.137*** |
| 609260 00 | 720 | TASK-72 | W | W | 1A | 1A | 172 | grades 10-12 | 151 | b | - .773 | c | b | -.381 | 13.962*** |
| | | | | | | | | | | | | | | | |

1/ Identify the test used and year of publication (MAT-58, CAT-70, etc.).
2/ Total number of participants in the activity.
3/ Identify the participants by specific grade level (e.g., grade 3, grade 5). Where several grades are combined, enter the 4th and 5th digits of the component code.
4/ Number of pupils for whom both pre and post test data are provided.
*In program but no pre or post test data (in addition to n's above); grades 2-3,165; 4-6,258;7-8,181
a= any 4 month time period
b= any 8 month time period
c=modified historical regression; standard-measure(z) deviates based on percentile ranks. ***p< .001

Corrective Mathematics in Non-Public Schools (function # 09-69628) Boehm
Test Data for Grade 1*

| Test Name | Component Code | n | Cut-off Score | Publisher | Form | Pretest (% passing) | Posttest (% passing) |
|---|---|---|---|---|---|---|---|
| Spatial | 6092300 | 57 | 14 | Psych. Corp. | A | 26.32 | 85.96 |
| Quant. | 6092300 | 30 | 11 | " | " | 13.33 | 83.33 |
| Time | 6092300 | 30 | 5 | " | " | 0.00 | 0.00 |

*No MIR table available.

Para Professional Contact Analysis (Analysis of Covariance Analogue)*

| | | Standardized Coefficient | T Test | DF | Significance |
|---|---|---|---|---|---|
| grades 2&3, 4 months in program | Pre Test | -0.084 | -0.64 | 105 | over .500 |
| | Post Test | -0.025 | -0.19 | 105 | over .500 |
| | Multiple correlation=0.102 F=0.55 | | | | |
| grades 4-6, 4 months in program | Pre Test | 0.259 | 2.06 | 138 | .042 ** |
| | Post Test | -0.333 | -2.66 | 138 | .009 ** |
| | Multiple correlation=0.221 F=3.53 | | | | |
| grades 7&8, 4 months in program | Pre Test | -0.225 | -1.58 | 96 | .117 |
| | Post Test | 0.341 | 2.40 | 96 | .019 ** |
| | Multiple correlation=0.239 F=2.90 | | | | |
| grades 2&3, 8 months in program | Pre Test | -0.050 | -2.12 | 2405 | .035 ** |
| | Post Test | 0.025 | 1.07 | 2405 | .287 |
| | Multiple correlation=0.043 F=2.24 | | | | |
| grades 4-6, 8 months in program | Pre Test | -0.061 | -2.42 | 3471 | .016 ** |
| | Post Test | 0.058 | 2.30 | 3471 | .022 ** |
| | Multiple correlation=0.043 F=3.21 | | | | |
| grades 7&8, 8 months in program | Pre Test | 0.029 | 0.83 | 1221 | .409 |
| | Post Test | -0.032 | -0.94 | 1221 | .349 |
| | Multiple correlation=0.029 F=0.51 | | | | |

*No MIR table available. ANCOVA Analogue analysis (i.e., if t test value ≤ .05 level of significance for posttest then there is a relationship between amount of para-professional contact and posttest performance, after pretest effect has been removed).

Note: For grades 9-12 there is either no data or no para contact for the 4 and 8 month time periods.

**Significant, but low level correlations are to be noted. In effect, para contact does not positively influence performance.

OFFICE OF EDUCATIONAL EVALUATION - DATA LOSS FORM
(attach to NARRATIVE) Function # 09-69263

In this table enter all Data Loss information. Between the MIR and this form, all participants in each activity must be accounted for. The component and activity codes used in completion of the MIR should be used here so that the two tables match. See definitions below table for further instructions.

| Component Code | Activity Code | (1) Group I.D. | (2) Test Used | (3) Total N | (4) Number Tested/ Analyzed | (5) Participants Not Tested/ Analyzed | | (6) Reasons Why Students Were Not Tested, Or If Tested, Were Not Analyzed | Number |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | N | % | | |
| 60923000 | 720 | Grades 2-3 | MAT | 2600 | 2469 | 131 | 5.40% | Missing/Students left program before | |
| | | | | | | | | posttest | 131 |
| 60924000 | 720 | Grades 4-6 | MAT | 3672 | 3574 | 98 | 2.67% | Missing/Students left program before | |
| | | | | | | | | posttest | 98 |
| 60925000 | 720 | Grades 7-8 | MAT | 1448 | 1314 | 134 | 9.25% | Missing/Students left program before | |
| | | | | | | | | posttest | 134 |
| 60925000 | 720 | Grade 9 | TASK | 110 | 92 | 18 | 16.36% | Missing/Students left program before | |
| | | | | | | | | posttest | 18 |
| 60926000 | 720 | Grades 10-12 | TASK | 172 | 151 | 21 | 12.21% | Missing/Students left program before | |
| | | | | | | | | posttest | 21 |

(1) Identify the participants by specific grade level (e.g., grade 3, grade 9). Where several grades are combined, enter the last two digits of the component code.
(2) Identify the test used and year of publication (MAT-70, SIAT-74, Houghton Mifflin (IPMS) Level 1 etc.)
(3) Number of participants in the activity.
(4) Number of participants included in the pre and posttest calculations.
(5) Number and percent of participants not tested and/or not analyzed.
(6) Specify all reasons why students were not tested and/or analyzed. If any further documentation is available, please attach to this form. If further space is needed to specify and explain data loss, attach additional pages to this form.
(7) For each reason specified, provide a separate number count.